WHAT IS CLAIMED IS:

1. An acrylic foam-like adhesive tape comprising:

(a) a layer of an acrylic foam-like backing comprising

(i) from about 88% to about 92% of an acrylic polymer comprising:

from about 35% to about 45% of a first alkyl acrylate monomer having alkyl groups which contain from 4 to 12 carbon atoms,

from about 30% to about 40% of a second alkyl acrylate monomer having alkyl groups which contain from 4 to 12 carbon atoms,

from about 6% to about 10% of a first monoethylenically unsaturated polar copolymerizable monomer, and

from about 1% to about 2% of a second monoethylenically unsaturated polar copolymerizable monomer; and

(ii) from about 8% to about 12% of hollow glass microspheres dispersed evenly in said polymer; and

(b) at least one layer of a heat-activated adhesive disposed on at least one side of the backing.

2. The acrylic foam-like adhesive tape according to claim 1, wherein the acrylic polymer includes from about 0.3% to about 0.5% of initiator.

3. The acrylic foam-like adhesive tape according to claim 2, wherein the initiator comprises at least one photoinitiator.

4. The acrylic foam-like adhesive tape according to claim 1, wherein the acrylic polymer includes from about 0.05% to about 0.07% of a crosslinker/chain extender.

5. The acrylic foam-like adhesive tape according to claim 4, wherein the crosslinker/chain extender is a multifunctional acrylate.

6. The acrylic foam-like adhesive tape according to claim 4, wherein the crosslinker/chain extender is a multi-ethylenically unsaturated copolymerizable monomer containing at least two carbon-carbon double bonds.

7. The acrylic foam-like adhesive tape according to claim 4, wherein:

the crosslinker/chain extender is taken from the group consisting of ethlene glycol diacrylate, triethylene glycol diacrylate, 1,4-butanediol diacrylate, 1,6-hexanediol diacrylate, trimethylolpropane triacrylate, pentaerythritol triacrylate, and methacrylates and combinations thereof.

8. The acrylic foam-like adhesive tape according to claim 4, wherein:

the crosslinker/chain extender is tetraethylene glycol diacrylate or its demethacrylate.

9. The acrylic foam-like adhesive tape according to claim 1, wherein the acrylic polymer includes from about 1% to about 2% of a filler.

10. The acrylic foam-like adhesive tape according to claim 9, wherein the filler is a fumed silica.

11. The acrylic foam-like adhesive tape according to claim 9, wherein the filler is a surface modified silica.

12. The acrylic foam-like adhesive tape according to claim 1, wherein:

the first alkyl acrylate monomer is isooctylacrylate,

the second alkyl acrylate monomer is 2-ethylhexyl acrylate,

the first monoethylenically unsaturated polar copolymerizable monomer is acrylic acid,

the second monoethylenically unsaturated polar copolymerizable monomer is acrylamide, and

the hollow glass microspheres are borosilicate glass.

13. The acrylic foam-like adhesive tape according to claim 12, wherein the acrylic polymer further comprises:

from about 0.3% to about 0.5% of initiator,

from about 1% to about 2% of a filler, and

from about 0.05% to about 0.07% of a crosslinker/chain extender.

14. The acrylic foam-like adhesive tape according to claim 13, wherein the initiator comprises at least one photoinitiator.

15. The acrylic foam-like adhesive tape according to claim 14, wherein the photoinitiator is benzoin ethyl ether.

16. The acrylic foam-like adhesive tape according to claim 12, wherein the filler is fumed silica.

17. The acrylic foam-like adhesive tape according to claim 12, wherein the filler is a surfaced modified silica.

18. The acrylic foam-like adhesive tape according to claim 12, wherein the crosslinker/chain extender is 1,4 butanediol diacrylate.

19. The acrylic foam-like adhesive tape according to claim 12, wherein the acrylic foam-like backing comprises:

from about 40% to about 41% isooctylacrylate;

from about 36% to about 37% 2-ethylhexyl acrylate;

from about 8% to about 9% acrylic acid;

from about 1% to about 2% acrylamide; and

from about 10% to about 11% borosilicate glass.

20. The acrylic foam-like adhesive tape according to claim 19, wherein the acrylic foam-like backing further comprises:

from about 0.35% to about 0.45% benzoin ethyl ether;

from about 1% to about 2% fumed silica; and

from about 0.055% to about 0.065% 1,4 butanediol diacrylate.

21. The acrylic foam-like tape according to claim 1, wherein the foam-like backing further comprises:

a sufficient amount of colorant to depart color to the adhesive tape.

22. The acrylic foam-like tape according to claim 1, wherein one layer of heat-activated adhesive is disposed on one side of the backing, and a layer of pressure sensitive adhesive is disposed on the other side of the backing opposite the layer of heat-activated adhesive.

23. A process for making an adhesive tape having an acrylic foam-like backing, the process comprising the steps of:

(1) preparing an oligomer while excluding oxygen and partially polymerizing the oligomer composition wherein the oligomer comprises from about 45% to about 55% of a first alkyl acrylate monomer having alkyl groups which contain from 4 to 12 carbon atoms, from about 35% to about 45% of a second alkyl acrylate monomer having alkyl groups which contain from 4 to 12 carbon atoms, from about 3% to about 4% of a first monoethylenically substituted monomer, and from about 0.04% to about 0.06% of at least one photoinitiator;

(2) forming a coating composition comprising from about 75% to about 80% by weight of said oligomer and a mixture having a first polar copolymerizable monoethylenically substituted monomer and a second polar copolymerizable monoethylenically substituted monomer having a combined weight percentage of about 6% to about 9%, from about 0.3% to about 0.5% of photoinitiator, from about 1% to about 2% filler, from about 0.05% to about 0.07% of at least one crosslinker/chain extender, and from about 8% to about 12% hollow glass microspheres, wherein, said coating composition is formed under a vacuum in the absence of oxygen and has a viscosity between 500 and 20,000 cps;

(3) providing a first liner wherein the first liner is a release liner having a heat-activated adhesive disposed on one side thereof;

(4) coating the composition onto the heat-activated adhesive disposed on the first liner and having a second liner contiguously cover the composition on the first liner thereby excluding air; and

(5) polymerizing the composition between the liners forming an essentially uniform foam-like sheet having glass microspheres evenly distributed therethrough and a layer of heat-activated adhesive on one side of the foam-like sheet.

24. The process of claim 23 wherein the step for preparing the oligomer comprises the steps of:

(1) mixing from about 50% to about 52% isooctylacrylate, from about 44% to about 46% 2-ethylhexyl acrylate, from about 2.5% to about 4.5% acrylic acid, and from about 0.03% to about 0.04% benzoin ethyl ether

(2) excluding oxygen from the monomer mixture by bubbling nitrogen therethrough; and

(3) extruding monomer mixture through a 4" diameter glass tube under ultraviolet radiation sufficient to initiate partial polymerization resulting in an oligomer having a viscosity of about 80 cps.

25. The process of claim 23 wherein:
the filler is taken from the group consisting of fumed silica and surface modified fumed silica,
the photoinitator is benzoin ethyl ether, and
the cross linker/chain extender is 1,4 butanediol diacrylate.

26. The process of claim 23, wherein:
in the mixing step, the mixture having a first polar copolymerizable monoethylenically substituted monomer is acrylic acid and a second polar copolymerizable monoethylenically substituted monomer is acrylamide, the photoinitiator benzoin ethyl ether, the filler is fumed silica, the crosslinker/chain extender is 1,4 butanediol diacrylate, and the hollow glass microspheres are borosilicate glass.

27. The process of claim 26, wherein
the mixture consists essentially of
about 5.5% to about 6.5 % acrylic acid;
about 1% to about 2 % acrylamide;
about 0.35% to about 0.45 % benzoin ethyl ether;
about 1% to about 2% fumed silica;
about 0.055% to about 0.065% 1,4 butanediol diacrylate; and
about 10% to about 11% borosilicate glass wherein the borosilicate glass is from about 40 to about 70 microns.

28. The process of claim 23, further comprising:
coating the surface of the backing opposite the heat-activated adhesive with an appropriate pressure-sensitive adhesive thus forming an adhesive tape with a heat-activated adhesive side and a pressure-sensitive adhesive side opposite the heat-activated adhesive.

29. The process of claim 23, further comprising:
(1) applying a primer to the surface of the foam-like sheet opposite the heat-activated adhesive layer; and
(2) coating the surface having primer thereon with an appropriate pressure-sensitive adhesive thus forming an adhesive tape with a heat-activated adhesive side and a pressure-sensitive adhesive side opposite the heat-activated adhesive.

30. The process of claim 29, wherein:
the primer is composed of a mixture of polyamide, isopropyl alcohol and toluene.

31. The process of claim 30, wherein:

the primer is composed of a mixture of from about 9% to about 11% polyamide, from about 44% to about 46% isopropyl alcohol, and from about 44% to about 46% toluene.

32. The process of claim 29 wherein:

the primer is taken from the group consisting of polyamide solution and emulsion, nitrile rubber based solution and emulsion, natural rubber based solution and emulsion, ethylene-propylene copolymer and ethylene-propylene-diene monomer terpolymer rubber based solution and emulsion, poly(ethylene-co-vinyl acetate solution and emulsion, poly(ethylene-co-vinyl acetate and alcohol) solution and emulsion, silane modified rubber and elastomer solutions, styrenic block copolymer solutions, hydrocarbon elastomer solutions, and combinations thereof.

33. The process of claim 23, wherein:

the second liner is a release liner having a heat-activated adhesive disposed on one side thereof thus forming a double-sided heat-activated adhesive tape.

34. The process of claim 23, wherein:

the crosslinker/chain extender is taken from the group consisting of ethlene glycol diacrylate, triethylene glycol diacrylate, 1,4-butanediol diacrylate, 1,6-hexanediol diacrylate, trimethylolpropane triacrylate, pentaerythritol triacrylate, tetraethylene glycol diacrylate, and methacrylates and combinations thereof.

35. A process of making a pressure-sensitive adhesive tape having an acrylic foam-like backing, the method comprising the steps of:

(a) making an acrylic foam-like backing comprising the steps of

(1) preparing an oligomer composition which has a viscosity of 80 cps by mixing, bubbling an inert gas through the composition, and running through a glass tube while exposing oligomer to ultraviolet radiation wherein the oligomer composition consists essentially of about 51% isooctylacrylate, about 45% 2-ethylhexyl acrylate, about 3.5% acrylic acid, and about 0.04% benzoin ethyl ether;

(2) mixing 80% oligomer composition with about 6% acrylic acid, about 1.5% acrylamide, about 0.3% benzoin ethyl ether, about 1.6% fumed silica, about 0.06% 1,4 butanediol diacrylate; and 10.5% borosilicate glass wherein the borosilicate glass is from about 40 to about 70 microns in a high speed mixer;

(3) excluding oxygen by bubbling an inert gas through the resultant mixture while pulling a vacuum sufficient to eliminate voids therethrough resulting a composition having a viscosity between 500 and 20,000 cps

(4) providing a first liner wherein the first liner is a release liner having a heat-activated adhesive disposed on one side thereof;

(5) coating the composition at a rate of about 5 meters/minute onto the heat-activated adhesive layer disposed on the first liner while having a second liner cover the composition on the first liner thereby excluding air; and

(6) exposing the composition on each side though the liners to ultraviolet radiation to polymerize the composition between the liners while simultaneously cooling the composition between the liners as the polymerization is being executed forming an essentially uniform foam-like sheet having glass microspheres evenly distributed therethrough and a heat-activated adhesive on one side thereof.

36. The process of claim 35, wherein the step of exposing the composition to ultraviolet light further consists of cooling the polymerizing composition.

37. The process of claim 35, wherein the step for exposing the composition to ultraviolet light consists of pulling the coating composition and two liners between two opposing banks of ultraviolet light.

38. The process of claim 36, wherein about four ultraviolet lights are surrounding the glass tube.

39. The process of claim 35, further comprising coating the surface opposite the heat-activated adhesive with an appropriate pressure-sensitive adhesive thus forming an adhesive tape with a heat-activated adhesive side and a pressure-sensitive adhesive side opposite the heat-activated adhesive.

40. The process of claim 35, further comprising:

(1) applying a primer to the surface of the foam-like sheet opposite the heat-activated adhesive layer; and

(2) coating the surface having primer thereon with an appropriate pressure-sensitive adhesive thus forming an adhesive tape with a heat-activated adhesive side and a pressure-sensitive adhesive side opposite the heat-activated adhesive.

41. The process of claim 35, wherein
the second liner is a release liner having a heat-activated adhesive disposed on one side thereof thus forming a double-sided heat-activated adhesive tape.